

VIEWPOINT SECTION

REFERENCE FRAMEWORKS FOR THE HEALTH MANAGEMENT OF MEASLES, BREAST CANCER AND DIABETES (TYPE II)

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SUMMARY

This paper presents reference frameworks which order effective and feasible policies and interventions for the health management of measles, breast cancer and diabetes (type II). These reference frameworks can be used to rapidly appraise regional health policy documents and existing health management systems. Furthermore, the reference frameworks can serve health policy makers for the planning of health management measures.

Key words: health management, measles, breast cancer, diabetes (type II), rapid appraisal

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INTRODUCTION

Interregional comparative and evaluative studies of health management systems in Europe are needed to assess the effectiveness and efficiency of programmes and activities. The project “Benchmarking Regional Health Management II” (BEN)* follows this path aimed at achieving more transparency among the different regional health systems and providing health policy makers with information and tools for improving their health management systems. Benchmarking Regional Health Management means the process of comparing performances of health management strategies and health governance processes along selected tracers. BEN focuses on measles immunization, breast cancer screening and care and diabetes (type II) screening and care. 19 European regions are involved; most of them belong to the WHO Regions for Health Network which is a partner of the BEN project.

The benchmarking will be done by analysing and comparing the organisation of regional health management systems and the health data of the regions. The information underlying this benchmarking process is obtained through questionnaires and indepth interviews, the health data refer to health performance indicators which were identified in the BEN project.

Central to the development of the questions for the interviews was the development of reference frameworks which order effective and feasible policies and interventions for the health management of the three tracers. These frameworks, however, do not only serve as a basis for the development of the questions but can be used for a rapid appraisal method suggested by Rosana Peiró et al. (1).

Against this background, the focus of this paper is laid on these reference frameworks. The aim of this paper is to present the three reference frameworks developed for the BEN project and to describe how they can be used in a rapid appraisal method.

MATERIAL AND METHODS

Gold Standards for a Rapid Appraisal Method

Peiró et al. recognized the need to find a method for appraising health policy documents, especially health plans. They developed what they call a “rapid appraisal method for ‘health for all’ policy formulation analysis” (1). Three tracers (AIDS, ageing-related disabilities, road traffic injuries) were selected. Peiró et al. constructed “gold standards” for the health management of each of

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them. Regions can compare their health plans and health policy documents against these gold standards.

Gold standards are built on a two-dimensional matrix with a time and an action dimension. The action dimension is represented vertically in four columns. Policies and interventions focusing on the individual would be listed in the first column. The second column focuses on the immediate setting of the individual, the third on the external environment and the fourth column on the social system. The time dimension is represented horizontally. The first classifies policies and interventions that can be applied early (e.g. for primary prevention), the second classifies policies and interventions for a later stage (e.g. secondary prevention) and the third for an even later stage (e.g. tertiary prevention). Table 1 shows the specific matrix for the gold standard for AIDS.

The matrix with its twelve cells then became the gold standard by filling in effective and feasible policies and interventions. The selection was made by literature reviews and expert opinions. As it turned out, for each of the cells of the three gold standards the expert panels identified between zero and eight policies and interventions.

Table 1. Matrix for AIDS [own table according to Peiró et al. (1)]

	Personal Factors	Setting	Community and Infrastructure	Social System
Non HIV + people				
HIV + people				
People with AIDS				

The three gold standards were then transformed into graphical representations which are based on the respective matrixes. The numbers one to eight are assigned to different shades of a colour (with white signifying zero). Here, the cells are of a darker shade of a colour where more policies and interventions were identified: white cells mean zero policies and interventions identified; the darkest shade of the respective colour was assigned to the highest number of policies and interventions identified for a cell in the gold standard.

The gold standards were then applied to two Spanish regions – Catalonia and Valencia. Peiró et al. compared the health plans of the regions with the gold standards. They counted the policies and interventions considered in the health plans. The results were also graphically represented in the matrix, for every policy and intervention found in the health plan, the shade of the colour in a cell got darker. Colours were assigned according to the colour shades used for the gold standards. In this way, they received coloured representations for each region. Compared to the graphic representation of the gold standard, the graphic representations of the regions then show where the regional health plans did well with considering policies and interventions – having the same or only slightly lighter shade of the colour in the respective cells – and where improvement was possible, namely where the colour of the cells was much brighter than in the graphic representation of the gold standard.

Adaptation of the Peiró Methodology

The authors of this paper – who include the steering group of BEN – changed the term “gold standard” and decided to use the term “reference framework” instead. They thought it difficult to the authors to develop a list of policies and interventions which could be considered a gold standard – an absolute norm, for health plans. One reason why this is difficult is that regional differences might make some of the policies and interventions listed in reference frameworks irrelevant or not applicable. Furthermore, the recommendation of policies and interventions might change over time.

Peiró et al. developed their frameworks to analyse, compare and appraise health plans. In BEN the reference frameworks will be used to analyse and appraise regional health management systems already existing. Thus, the BEN steering group will set a reference point in time for all regions. For this point in time, it has to be analysed which policies and interventions have been implemented.

Tracer Selection

Tracers should represent public health issues where an improvement of health management promises major positive health effects. Furthermore, tracers should provide information about the whole health system (1). To focus on different health management aspects, three different tracers were chosen in the BEN project and as such were subject to building three reference frameworks. Measles immunization was chosen as a tracer because the focus lies on prevention. Breast cancer screening/care was selected as a tracer for focussing on screening. The tracer diabetes screening/care was chosen to focus on care.

Selection of Policies and Interventions for the Reference Frameworks

The process of selecting policies and interventions was based on literature reviews and expert opinions. First, a literature review was conducted in PubMed, covering literature from the years 2000 to 2004. The review concentrated on the respective disease concept (measles, diabetes mellitus, breast neoplasms), the name of the twelve countries that were involved in BEN at that time and the respective health management concepts applicable to the respective tracers (vaccination, mammography, mass screening, delivery of health care, prevention and control). Publication types such as editorials or letters were excluded.

In August 2004, this review was sent to the members of the BEN steering group which consists of Public Health experts and policy makers. This literature base was combined with recommendations made by international health agencies and competent authorities (WHO, European Commission, Federal Ministry of Health and Social Security) (2-6).

A second literature review was conducted at a later point in time (January 2005) and was considered for the selection of policies and interventions. This review was focused on searching for Health Technology Assessments for breast cancer and diabetes also in connection with the twelve countries. The databases searched were: HTA at the Centre for Reviews & Dissemination, University of York; Cochrane Reviews Database and DIMDI-HTA Database. The final review list was a selection of the results according to the concepts “screening, prevention and health services”. Drug trials were excluded.

Table 2. Reference framework for measles immunization

		ACTION LEVEL			Overall goal: - Measles eradication [Incidence] - Reduction of deaths by measles [Mortality] Strategic points [Indicators]
		Individual /Immediate Setting	Population	Social System, Legislative, Professions	
T I M E	First dose	<ul style="list-style-type: none"> Coverage with 1st dose Individual reminder Documentation of immunization for parents (passes, certificates etc.) Documentation of immunization for Primary Care Physician (PCPs): IT, patient files etc. (Obligation to immunize) 	<ul style="list-style-type: none"> Invitation/reminder/recall system Strategies to immunize marginal groups/sub-groups (e.g. gypsies, unregistered migrants, refugees) Special strategies for lower socio-economic groups 	<ul style="list-style-type: none"> Legislation/Law on Infectious diseases Strategy for measles elimination National/regional immunization plan with defined targets Implementation of WHO-immunization guidelines Sentinels 	<ul style="list-style-type: none"> >95% Coverage with 1st dose [uptake rate 1st dose] Reduce complications [hospitalization rate] Improve measles immunization surveillance
		<ul style="list-style-type: none"> Home-visiting interventions 	Establishment of campaigns: <ul style="list-style-type: none"> Catch-up Follow-up Focal 		<ul style="list-style-type: none"> Promote 2nd opportunity for immunization
		<ul style="list-style-type: none"> Easy/cheap access to vaccination/Reduction of out of pocket costs for vaccination Bonuses for parents 		<ul style="list-style-type: none"> Incentives for PCPs Guaranteed reimbursement of vaccination for PCPs 	<ul style="list-style-type: none"> Improve motivation of PCPs and parents
				<ul style="list-style-type: none"> Educative measures concerning risks/benefits of immunization 	<ul style="list-style-type: none"> Improve education of health professionals
		<ul style="list-style-type: none"> Education of agents in shared facilities about benefits/risks of vaccination 	<ul style="list-style-type: none"> Awareness raising campaigns Educational measures about benefits/risks of vaccination Local authorities offer information/counselling Multi-media information resource availability (e.g. e-health) Agenda-Setting in the media 	<ul style="list-style-type: none"> Education of multipliers Risk-communication 	<ul style="list-style-type: none"> Improve knowledge of population regarding risks/benefits of immunisation Maintain public confidence in vaccine safety
				<ul style="list-style-type: none"> Drug Law Licensing of vaccine Producer is obligated to cold-chain logistics (product liability) 	<ul style="list-style-type: none"> Maintain high quality of vaccine
				<ul style="list-style-type: none"> Strategy for quality assurance in place and regular review and development of strategy Serological survey 	<ul style="list-style-type: none"> Establish evaluation of programmes
		<ul style="list-style-type: none"> Pre-school nursery/kindergarten/school entry screening Motivation of parents/teachers to identify non-immunized children Offering vaccination 			<ul style="list-style-type: none"> Identify non-immunized persons
	Second dose	<ul style="list-style-type: none"> Coverage with 2nd dose Individual reminder Documentation of immunization (passes, certificates etc.) 	<ul style="list-style-type: none"> Invitation/reminder system Strategies to immunize sub-groups 	<ul style="list-style-type: none"> Information of doctors about second dose 	<ul style="list-style-type: none"> >95% Coverage with 2nd dose [uptake rate 2nd dose] Raise uptake rate of second dose
		<ul style="list-style-type: none"> Pre-school nursery/kindergarten/school entry screening Motivation of parents/teachers to identify non-immunized children with second dose Offering vaccination with second dose 			<ul style="list-style-type: none"> Identify persons non-immunized with 2nd dose
	Children with measles	<ul style="list-style-type: none"> Identification of contacts 		<ul style="list-style-type: none"> Rapid communication of cases and coordination of health services Improvement of skills in professionals to detect and to communicate cases 	<ul style="list-style-type: none"> Prevent new infections
				<ul style="list-style-type: none"> Participation in "Measles and Rubella Laboratory Network" Establishment of national reference laboratory 	<ul style="list-style-type: none"> Improve quality of diagnostics
				<ul style="list-style-type: none"> Obligation to report cases Surveillance of uptake rates, vaccination register Register of severe adverse reactions Health reporting Implementation of surveillance guidelines of WHO Vigorous case investigation and laboratory confirmation 	<ul style="list-style-type: none"> Strengthen/improve measles surveillance

Table 3. Reference framework for breast cancer screening/care

ACTION LEVEL				Overall goal: Reach 30% reduction in breast cancer mortality [Mortality], [Detection rate], [5-year survival rate; 10-year survival rate]; [Fatality]; [Incidence] Strategic points [Indicators]
Individual /Immediate Setting		Population	Social System, Legislative, Professions	
U n d i a g n o s e d	• Access to information on factors causing breast cancer and genetic determinants of breast cancer for persons at risk & their families		• Establishments of seals of approval for trustworthy information	• Educate persons about factors causing breast cancer
			• Initiation and support of research	• Improve scientific knowledge about factors causing breast cancer
	• Initiation and promotion of manual breast self-examination	• Availability of genetic counselling and testing for women from families with breast cancer history • Self-awareness campaigns	• Reimbursement of non-mammography breast examinations by physicians (ultrasound, manual)	• Support other examination methods than mammography • Raise self-awareness
	• Easy access to mammography screening programmes for women 50-69 years	• Area-wide mammography screening programme according to EUREF • Identification and invitation of eligible women (every two/three years) • Invitation system for mammography screening	• Clear strategy according to EUREF guidelines • Establishment of specialized breast centres according to EUREF guidelines • Breast centres have possibilities for triple assessment (clinical, mammogram, biopsies)	• Extend mammography screening: participation rate >70% among women between 50-69 years [participation rate] • Increase the validity and accuracy of mammograms reading • Reduce unnecessary biopsies
		• Agenda-Setting in the media • Promotion via local authorities, PCPs etc.		• Raise the acceptability of mammography screening • Promote mammography screening programmes in public
			• Education of physicians and the political community regarding the risks and benefits of mammography screening • Education of technicians/radiologists	• Improve the screening education of professionals
			• Establishment of cancer/breast-cancer registers • Obligatory reporting	• Improve surveillance
	• Informed consent with high standard information • Respecting right not to know			• Set ethical standards for screening
	• Information about alternative strategies • Active offer of additional conversations according to patients' needs • Psycho-social care		• Training the competence of communication of health professionals (doctors, nurses) • Development of Disease Management Programmes/Integrated Care	• Improve responding of care to individual needs • Monitor patient satisfaction
			• Policies & initiatives to train breast cancer workforce	• Improve education of professionals
D i a g n o s i s e d w i t h c a n c e r	• Treatment of patients by interdisciplinary teams in dedicated breast centres		• Establishment of specialized centres (with defined minimum number of primary therapy) • Certification of centres (according to EUSOMA) • Establishment of internationally recognised performance indicators (e.g. mastectomy rates)	• Improve quality of care
		Mutual-help groups (should): • be supported (by physicians etc.) • participate in development and quality assurance of health/disease management programmes		• More involvement of mutual-help groups
	• Empowerment of patients to encourage to exercise their rights in participation • Access of patients to information assessing the quality of the care provider		• Improvement of competence of physicians, nurses, staff etc. to communicate with patients	• Promote patient education • Involve patients in decision-making process
	• Psycho-social counselling	• Establishment of psychological support centres	• Consideration of psychological factors in guidelines • Improvement of psycho-social competence of health professionals	• Improve quality of life
	• Offer of follow-up care			• Assure follow-up
	• Home-help is reimbursed by health insurances • Cures are financed by health insurances		• Implementation of guidelines for rehabilitation • Improvement of ambulant rehabilitation • Establishment of severely handicapped passes (and other benefits) • Cosmetic implants are covered by insurance	• Improve rehabilitation
			• Resource allocation for breast cancer research • Strategy to integrate research outcomes into care programmes/practice	• Give research high priority

Table 4. Reference framework for diabetes screening/care

		ACTION LEVEL			Overall goal: • Reduce diabetes-related deaths Strategic points [Indicators]
		Individual /Immediate Setting	Population	Social System, Legislative, State, Professions	
T I M E	Primary prevention		<ul style="list-style-type: none"> Information about consequences of unhealthy lifestyles Provision of evidence based information Addiction prevention programmes Health promotion campaigns 	<ul style="list-style-type: none"> Implementation of anti-obesity programmes Implementation of education programmes Creation of living conditions that promote healthy living (e.g sidewalks to motivate people in cities to walk, healthy food in schools etc.) Establishment of seals of approval for trustworthy information 	<ul style="list-style-type: none"> Reduce cases of diabetes [prevalence] Prevent new cases of diabetes [incidence] Improve the education of the population about lifestyle dependent health risks
		• Community oriented prevention / setting approaches	• Lifestyle oriented prevention campaigns (e.g. campaigns on healthy food)	<ul style="list-style-type: none"> Impact on cultural lifestyle habits (taxations, prohibitions etc.) Consumer protection laws (e.g. nutritional information) 	• Promote healthier lifestyles
	Screening	• Social-medical counselling	• Motivating measures to increase participation in health checkups in target groups	• Financing of preventive check-ups	• Raise uptake rate of medical, preventive check-ups
		• Check-ups for people who see doctors for other reasons	<ul style="list-style-type: none"> People from 35 years on: regular health check-ups: urine, glucose, blood pressure, weight, blood lipids Regular health check-ups for people with family history in diabetes Screening in individuals with abdominal adiposity (men), hypertriglyceridaemia (women), hypertension, and parental diabetes history. Broadly based screening programs looking for metabolic and cardiovascular risk factors and for early disturbances of carbohydrate metabolism particularly in middle-age groups Information campaigns 	• Evidence based strategy in place for prevention of diabetes type 2, including monitoring and evaluation components	<ul style="list-style-type: none"> Identify more persons at higher risk Identify more persons with diabetes Raise uptake of examinations for early detection Reduce mortality
				<ul style="list-style-type: none"> Investment in professional development of workforce Provision of education programmes for professionals 	• Improvement of the education of professionals
		<ul style="list-style-type: none"> General screening, preferably one-step screening should be offered to each pregnant woman. Screening for overweight pregnant women 			<ul style="list-style-type: none"> Achieve pregnancy outcome in the diabetic women that approximates that of the non-diabetic woman Identify more pregnant women with diabetes
	Secondary prevention	• Promotion of self-testing			• Increase number of people with diabetes self-monitoring glucose
		<ul style="list-style-type: none"> Offer of patient education/seminars about self-care and lifestyle Involvement of patients and families in planning the delivery of care Education of patients' families about self-care and lifestyle 	• Provision of education programmes for patients	• Improvement of competence of physicians, nurses, staff etc. to communicate with patients	<ul style="list-style-type: none"> Improve number of educated patients [participation rate in education programmes] Involve more patients in decision-making process
					• Reduce hospitalisation among people with diabetes [hospitalization rate]
				<ul style="list-style-type: none"> Training of competence of communication of health professionals (doctors, nurses) Disease Management Programmes/Integrated Care 	• Improve responding of care to individual needs
	Tertiary prevention	<ul style="list-style-type: none"> Patient training Offer of seminars (smoking, alcohol, overweight) 	Mutual-help groups (should): <ul style="list-style-type: none"> be supported (by physicians etc.) participate in development and quality assurance of health/disease 		<ul style="list-style-type: none"> Raise degree of health literacy and information about the disease/disease-management among people with diabetes More involvement of mutual-help
		<ul style="list-style-type: none"> Screening for complications Management of long term & fatal complications Annual foot exams among people with diabetes Treatment of elevated blood pressure Dilated/annual eye exam 	• Strategy for detection and management of long-term & fatal complications	<ul style="list-style-type: none"> Assurance of insulin provision (different types, sufficient insulin) Assurance of test strips provision Raising awareness of health professionals Incentives for health professionals to detect complications 	<ul style="list-style-type: none"> Assuring tertiary prevention Reduce cases of complications: diabetic renal failure; foot ulcers; limb amputations; respiratory complications; blindness, cardiovascular diseases etc.

The reference frameworks were developed, filled in and discussed in virtual communication and in three steering group meetings (between September 2004 and October 2005). The steering group chose the action and time dimensions of the reference frameworks and made the first selection of the policies and interventions. To make the reference frameworks as comprehensible as possible, short formulations for policies and interventions were chosen.

Then external experts reviewed the reference frameworks. Two experts for measles vaccination and infectious diseases, two external experts on breast cancer screening and treatment, and three experts on diabetes reviewed the frameworks for the tracers they are specialists for. Three public health experts reviewed all three reference frameworks, focussing on the choices made on the time and action dimension and further methodological aspects.

The steering group made the final decision on the reference frameworks in a meeting in October 2005.

RESULTS

Reference Frameworks

The authors and external experts decided that the reference frameworks should have three columns for the action level dimensions instead of four. The first refers to policies and interventions aimed at the individual and the immediate setting, the second to policies and interventions aimed at the population in general. In the third column, policies and interventions are subsumed under the heading "social system, legislative and professions". Using three columns has the advantage of more compact reference frameworks which have fewer blank cells but are still differentiated.

A fourth column was added which is, however, not considered in the rapid appraisal approach. Rather it functions as an additional ordering element of the reference frameworks. First, this column names the overall goals of the health management scheme and then lists strategic points from which specific health targets could be formulated for the health management approach. In the rows, the policies and interventions are assigned to the respective strategic points. To make this assignment transparent, dotted lines were drawn in the rows subdividing them. Additionally, the indicators

which can be used for assessing the performance of the health management approach are named here. The indicators were identified by the authors. In the course of the BEN project, the data for these indicators will be obtained from participants and external experts.

The reference frameworks have between two (breast cancer screening/care) and four (diabetes screening/care) rows designated to a time dimension.

The following time dimensions were chosen for the reference framework of measles immunization: "First Dose [of immunization]", "Second Dose", and "Children with Measles" to list the policies and interventions which are effective and can be applied once measles have broken out (see Table 2).

The reference framework for breast cancer screening/care has two time dimensions: "Undiagnosed", under which the policies and interventions for early detection including screening are subsumed, and "Diagnosed with Cancer" that focuses on care and rehabilitation (see Table 3).

The reference framework for diabetes screening/care has the time dimensions "Primary Prevention", "Screening", "Secondary Prevention" and "Tertiary Prevention" (see Table 4).

Coloured Schemes for the Rapid Appraisal

The authors came to the conclusion that assigning absolute numbers of policies and interventions to colours as Peiró et al. had done was a disadvantage because this always required a comparison with the graphic representation of the gold standard/reference framework. Alternatively, relative numbers (how many percent of the possible policies and interventions are applied in the region) can be used and percentages be assigned to different shades of a colour. When filling in the reference frameworks for a region with the colours, one immediately sees in which cell the region does well and in which there is potential for implementing more policies and interventions. A direct comparison with a gold standard/reference framework is not necessary anymore.

Table 5 shows a fictive example of this rapid appraisal method applied to a region. Here the first cell has to be read as follows: "Five of five, i.e. 100%, of the policies and interventions of the reference framework for the health management of X in the region Y are implemented."

It is recommendable to decide in what steps of percentages the colours have to be assigned after one has designed the reference frameworks and has the numeric results from the regions (Table 5 shows the example in which the first 25% and the second 25% only get one shade each and then the colour shades refer to steps of 10%).

DISCUSSION

The research conducted led to three reference frameworks for the health management of measles, breast cancer and diabetes (type II) and to a refined method of applying these reference frameworks to rapid appraisal. This method is more efficient because it uses relative numbers assigned to colour shades. Thus a graphic representation of a region can stand on its own and be informative – no comparison with a graphic representation of the respective reference framework is needed.

There are disadvantages of using the coloured representations to appraise existing health management systems. If a policy or

Table 5. Example of a graphic representation of a region's health management

	Personal factors/ setting	Community and infrastructure	Social system
Primary prevention	5/5 (100%)	8/9 (89%)	4/10 (40%)
Secondary prevention	1/5 (20%)	8/10 (80%)	3/5 (60%)
Tertiary prevention	2/3 (67%)	10/11 (91%)	3/4 (75%)

0-25 %	26-50 %	51-60 %	61-70 %	71-80 %	81-90 %	91-100 %
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Legend: Shades assigned to percentages of policy and intervention options implemented

intervention is only implemented in a part of the region or implemented not very effectively, it can be counted as implemented. However, this does not say much about the successfulness of the implementation. Furthermore, the policies and interventions are not weighed. Thus, a comparably minor policy or intervention which has been implemented might make the shade of colour of a cell darker indicating a more comprehensive health management approach than that of another region. The other region, however, might indeed have fewer but rather effective policies and interventions implemented.

This hints at another limitation of this method: its insensitivity to cultural backgrounds. This is illustrated by the following example. In the reference framework for measles immunization, one special policy is mentioned in brackets: "Obligation to immunize". This is a very effective policy which, however, cannot be implemented in all regions due to cultural differences. In some regions compulsory health measures might be more acceptable than in others. Furthermore, the above-mentioned problem of implementation implies a special phenomenon here: even if an obligation exists, it does not necessarily mean that it is fully enforced (7).

Although there are limitations of this method, the advantages of the rapid appraisal method are clear. The method is relatively easy to use (1) and compared to the little effort very beneficial and helpful. One can see at one sight in which dimensions policy makers can investigate more closely to improve the health management in their region. Also regions could be compared against each other. However, a ranking of the regions is not the aim of applying this method and would, furthermore, hardly be possible due to the limitations of the method discussed above.

With this method, the health planning and health management schemes of regions can be monitored over time and as such the reference frameworks and the rapid appraisal method are a useful tool for the evaluation of health plans (1), including the utilisation of regional health target programmes that are conducted in some European regions (8, 9).

CONCLUSION AND OUTLOOK

The reference frameworks are helpful in two ways. They give an overview of effective and feasible interventions and policies for the health management approach of the respective tracers. This helps policy makers to develop the health management in their regions or countries. Additionally, they can serve as the basis for a rapid appraisal method for health plans or for the analysis of the health management approaches and structures already existing. As such, they can be a starting and endpoint of the health policy

cycle: in the beginning, to set up health plans and organise health management systems and then later on to evaluate existing health management systems.

The reference frameworks are now published to serve as a tool for all interested public health experts and policy makers. They are also offered to representatives from regions not taking part in BEN to use them for rapid appraisal procedures in their region. Representatives are invited to send their results to the corresponding author of this paper to be included in the project's final report.

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